Key Instructional Design Considerations for Distributed Learning

Jeanne Farrington, CPT, Ed.D.
J. Farrington Consulting
Rossier School of Education
University of Southern California

ICT Immersive Training Workshop
November 4, 2004
Marina Del Rey, California

Assuming that you have…

- Something your soldiers need to learn
- A course goal
- Knowledge of relevant learner characteristics
- Information about their prior knowledge
- Context information
- Content to analyze and structure
- Course objectives

And, DL makes sense...

- Allows useful practice of the new knowledge and skills
- Enables feedback (knowledge of results) to learners as they engage with the new knowledge and skills
- Provides efficiencies and/or cost savings

Then you'll want to...

- Make the objectives clear
- Provide a strong rationale for learning
- Inspire confidence in the learner
- Design for relevant content types
- Provide practice, practice, and more practice
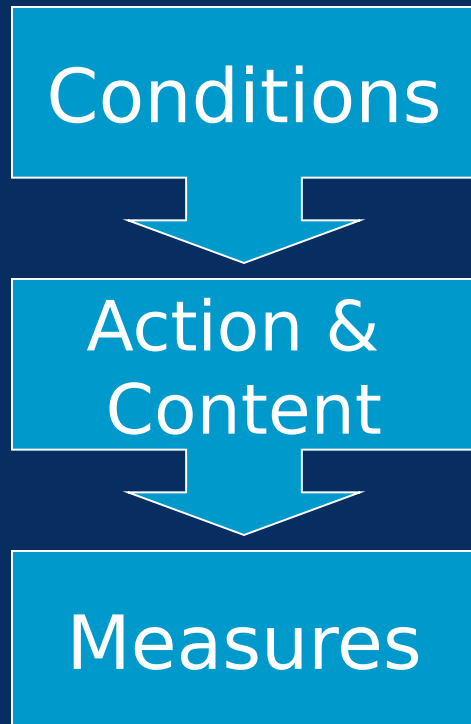- Include useful feedback

Why Clear Objectives?

- For the learner
  - Part of the advance organizer (activation)
  - Help with where to focus
  - Adults want to know where they are going
  - Helps with motivation
- For the designer and instructors
  - Narrowing down to necessary focus
  - Providing sufficient practice, feedback

Clear Objectives

Conditions

↓

Action & Content

↓

Measures

- ■ Conditions
  - ▲ Using the job aid
  - ▲ From memory
- ■ Action & Content
  - ▲ Locate and repair the problem.
  - ▲ Write a learning objective.
- ■ Measures
  - ▲ In 5 minutes or less
  - ▲ Including the following…
  - ▲ With 3 mistakes or fewer

Objectives Review

- You will know all the parts of your rifle.
- You will prepare a weekly meal plan.
- You will be able to list useful cognitive strategies for learning at a distance within 5 minutes.
- You will be able to provide appropriate challenges and engagement in your DL designs.

Why a Strong Rationale?

- You want to get their attention and interest early
- Adult learners want to know:
  - Why should I learn this?
  - What makes it important?
  - What happens if I **don't** learn this?
- 50% of learners (or more) do **not** complete distance learning programs
- They often need help to persist with the program

Provide a Strong Rationale

- This is important because…
  - It will help you to be more effective
  - It could save your life
- This will be of use to you because…
  - Knowing this, you'll be able to advance
  - You need this course for your job
- This will satisfy your curiosity about…
  - You may have wondered **why**
  - Haven't you always wondered **how**

Rationale Practice

- Do I want to?
  - ▲ Importance
  - ▲ Utility
  - ▲ Interest
- Do I feel like it?

Why Inspire Confidence?

- Again, high drop-out rate for DL courses
- Learners must believe they can be successful
- Learning requires effort
  - If the course seems too difficult, the learners will drop out
  - If it seems too easy, they will not invest effort
- So they need the right level of confidence (self-efficacy)

Inspire Confidence

- Refer to similar course they took and mastered (e.g., prerequisite)
- Connect with prior knowledge
- Design content in small, digestible chunks
- Provide ample opportunities to practice
- Provide immediate feedback
- Allow more time, where needed
- Design for mastery

Inspiring Confidence Practice

- This is similar to the course you took on…
- Now we're going to build on…
- Read through the following page and be ready to point out…
- Work on activities 1 and 2. For more practice…
- Your answer is correct!
- Review until you are ready for the test
- Once you have mastered the practice exercises, then…

Why Consider Content Types?

- What to gather for content/task analysis
- The right methods/strategies for teaching/learning activities
- Helps you to match
  - Learning objectives
  - Information
  - Examples, practice
  - Test items
- How to test for mastery

Design for Content Types

- Declarative knowledge
- Concepts
- Principles
- Procedures
- Problem solving
- Cognitive strategies
- Attitudes
- Psychomotor skills

Declarative Knowledge

- Stuff you can declare, or talk about
- Facts, lists, names, organized information
  - Your chain of command is…
  - The following countries border on the Iraq…
  - The biggest factors in the development of modern warfare were…

Declarative Knowledge Design

- Linking, chunking, clustering
- Pictures, models, maps, graphs
- Chronology, time periods, location, other patterns
- Tables, flowcharts, mind maps
- Elaborate with stories, examples...

Concepts

- Sets of
  - Objects
  - Ideas
  - Events
- With characteristics in common **and**
- That share a common name
  - Grenade, weapon
  - Cleanliness, order
  - March, deployment

Concept Design

Military Transport

- Definition, including critical attributes
- Clear and divergent examples
- Clear and close-in nonexamples
- Practice classifying examples and perhaps providing their own

Principles

- Rules that help us to
  - Predict what will happen
  - Explain things that happen
  - Control what will happen
- Generally involve cause and effect
  - If you pull the pin and let go, the grenade will explode.
  - If you do not plan for supplying the troops, the mission will be delayed or compromised.

Principle Design

- Present the principle
- Practice recognizing when to apply the principle
- Practice applying in a variety of situations
- Have them check their work

Procedures

- Steps to be taken to complete a certain task
  - ▲ Cleaning a rifle
  - ▲ Dressing a blister
  - ▲ Preparing a recipe

Procedure Design

- Show the beginning and end state of the procedure
- Present each step, demonstrate it, provide practice, give feedback
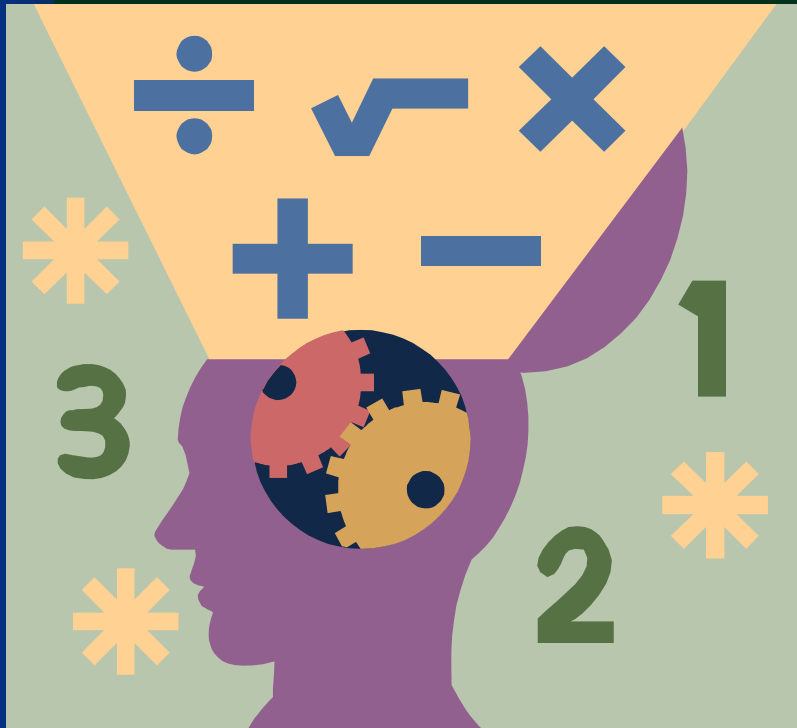- Evaluate progress and final results

Problem-Solving

- Select and apply multiple principles (rules)
  - ▲ Troop supply planning
  - ▲ Medical triage
  - ▲ Map-reading
  - ▲ Instructional design

Problem-Solving Design

- Review types of problems to be solved —start simple
- Define range of goals and likely variables related to the problem
- Teach strategies for each type of problem
- Practice with case studies, job aids— easier to more complex

Cognitive Strategies

- How people manage their own learning
  - Organizing: outlining, underlining
  - Rehearsing: repetition for memorization
  - Elaborating: finding examples from one's own experience

Cognitive Strategy Design

- Review when a strategy is useful
- Review steps
- Provide examples and nonexamples of strategy
- Provide practice and feedback using the strategy in a variety of situations

Attitudes

- Manifest as choices people make about what they will do
  - ▲ Choosing to observe safety rules
  - ▲ Providing friendly customer service
  - ▲ Showing respect for authority

Attitudes Design

- Provide a respected role model who demonstrates the desired behavior
- Teach how to do the new thing and why
- Provide practice, use role plays
- Provide positive feedback for the new behaviors

Psychomotor Skills

- Learning coordinated muscle movements
  - Typing
  - Suturing
  - Gestures for making presentations
  - Hand-to-hand combat
  - Driving a forklift

Psychomotor Skills Design

- Teach when to do the required action
- Demonstrate the skills
- Provide practice
- Provide feedback
- Make sure the learner can determine when to use these skills

Practice, Practice, Practice

- Pick one
  - Multiple choice
  - Checklists
- Fill-in-the blank
- Matching
- Clustering
- Roll-over for more information
- Draw or write on paper

- Context matters
- Practice on own
- With a group of learners
- With an instructor in real time (though distant)
- Hybrid solutions— part at a distance, part with an instructor present

Useful Feedback

- Feedback means "knowledge of results"
- Right or wrong answer
- Why an answer is right or wrong
- Additional instruction to treat misconceptions, lack of knowledge
- The more immediate, the better
- On the requisite steps
- **And** on the whole task

Key Considerations

- Use objectives to focus design and learning efforts
- Provide a strong rationale for learning
- Inspire confidence in the learner
- Design for relevant content types
- Provide practice, practice, and more practice
- Include useful feedback